

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

RE: THE ALLOWABLE SUBJECT MATTER

The Examiner's allowance of claims 7-14 is respectfully acknowledged.

RE: THE AMENDMENTS TO THE CLAIMS

Claim 1 has been amended to recite that the scraper provided on the passage side of the valve guide has a lower portion with an inner diameter and an outer diameter which decrease toward a lower end to thereby form a truncated cone-shaped cutting edge and that the inner diameter of the cutting edge includes a straight bore parallel to the valve stem at an end thereof, as supported by the disclosure in the specification at, for example, paragraphs 0044 and 0045 and as shown in Fig. 5.

In addition, claims 2 and 4 have been amended to better accord with amended claim 1, and new claims 15-18 have been added to recite features of the straight bore (21L), as also supported by the disclosure in paragraphs 0044 and 0045 and Fig. 5.

No new matter has been added, and it is respectfully requested that the amendments to the claims be approved and entered.

RE: THE PRIOR ART REJECTION

Claims 1 and 5 were rejected under 35 USC 102 as being anticipated by USP 2,418,674 ("Steiner"); and claims 2-4 and 6 were rejected under 35 USC 103 as being obvious in view of the combination of Steiner and US 2003/0006390 ("Smith et al"). These rejections, however, are respectfully traversed with respect to the claims as amended hereinabove.

According to the present invention as recited in independent claim 1, a valve device is provided which includes a valve housing body having a passage for fluid, a valve guide arranged in the valve housing body, a valve stem sliding in the valve guide to open and close a valve, and a scraper provided on a passage side of the valve guide. As recited in amended independent claim 1, the scraper has a lower portion with an inner diameter and an outer diameter which decrease toward a lower end to thereby form a truncated cone-shaped cutting edge, and the inner diameter of the cutting edge includes a straight bore parallel to the valve stem at an end thereof.

That is, as shown in Fig. 5 and discussed in paragraph 0044 of the specification, the scraper (21) has a cylindrical lower portion whose inner and outer diameters gradually decrease toward a front or lower end so that a truncated cone-shaped cutting edge (21H) is formed. The inner diameter of the cutting edge (21H)

includes a straight bore (21L) which is parallel to a small diameter shaft part (16D) of the valve stem (16).

With this structure, the scraper of the present invention achieves significant advantages. Specifically, deposits, such as carbon contained in the exhaust gas and deposited on the surface of the valve stem (16) can be easily scraped off by the cutting edge (21H) of the scraper (21) when the valve stem (16) slides upward against the valve guide (17). Moreover, in view of the formation of the straight bore (21L) on the inner diameter of the scraper (21), the strength of the cutting edge (21H) is improved and deformation of the cutting edge (21H) is prevented.

It is respectfully submitted that neither Steiner nor Smith et al disclose, teach or suggest a scraper having a cutting edge with an inner diameter including a straight bore parallel to the valve stem at an end thereof, as according to the present invention as recited in amended independent claim 1.

Steiner discloses a valve including a scraper 36 having a downwardly converging conical taper which comes into contact with the valve stem 18. However, in contrast to the claimed present invention, the inner diameter of the scraper 36 of Steiner is entirely conical and therefore does not include a straight bore parallel to the valve stem. Accordingly, it is respectfully submitted that Steiner clearly does not anticipate the structure of the present invention as recited in amended independent claim 1.

It is respectfully submitted, moreover, that Smith et al also does not disclose a scraper having a cutting edge with an inner diameter including a straight bore parallel to a valve stem.

Accordingly, it is respectfully submitted that amended independent claim 1, and claims 2-6 as well as new claims 15-18 depending therefrom, all clearly patentably distinguish over Steiner and Smith et al, taken singly or in combination, under 35 USC 103.

* * * * *

In view of the foregoing, entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned for prompt action.

Respectfully submitted,

/Douglas Holtz/

Douglas Holtz
Reg. No. 33,902

Frishauf, Holtz, Goodman & Chick, P.C.
220 Fifth Avenue - 16th Floor
New York, New York 10001-7708
Tel. No. (212) 319-4900

DH:br